

### Abstract of the Disclosure

A semiconductor device for use in a memory cell includes an active matrix provided with a semiconductor substrate, a plurality of transistors formed on the semiconductor substrate and conductive plugs electrically connected to the transistors, a number of bottom electrodes formed on top of the conductive plugs, composite films formed on the bottom electrodes and  $\text{Al}_2\text{O}_3$  films formed on the composite films. In the device, the composite films are made of  $(\text{Ta}_2\text{O}_5)_{0.92}(\text{TiO}_2)_{0.08}$  by using an atomic layer deposition (ALD).